

THE UNIVERSITY OF WISCONSIN
THE MEDICAL SCHOOL
MADISON 6

MCARDLE MEMORIAL LABORATORY
FOR CANCER RESEARCH

November 30, 1949

Dr. Arthur Kornberg
National Institutes of Health
Bethesda 14, Maryland

Dear Dr. Kornberg:

I received your letter of November 15. Like you, I am at a loss to understand our discrepancies in phosphate analyses. The preparation we sent you analyzed 97% with glucose-6-phosphate dehydrogenase on our first assay, uncorrected for water. Dr. Mueller suggested a check and a second weighing which was very stingy (2.5 mg. on ordinary analytical balance) gave an assay of 115%. We thought the first assay was probably correct and sent the preparation on, since you would assay it anyhow. After some 10 days, we found, as you did, a lower assay (69,73%). I find 11.5% phosphorus. We reassayed it later and the material seemed to have stabilized at 70%. But now it has material in it which causes the hydrosulfite assay to be much higher than the enzyme assay. Yesterday I finally found time to run the material on a chromatogram. Using a batch of charcoal which has always given essentially complete recoveries with other preparations, I obtained only 40% recovery. This seems to confirm the suggestion that it is contaminated with metals and makes further work with this particular batch useless.

At present I have no need for TPN in my own research and Dr. Mueller has finished the work in which he required it. I am engaged in two problems which involve collaboration with other members of our staff. Pressure from them to get on with our collaborative work makes it difficult to justify taking time out just now to start another batch of TPN. I very much regret it, but feel I must leave this matter up to you now. I note that you stated in your earlier letters that you were really satisfied with the results obtained on your own preparations ~~as to be~~ valid, that they are free of phosphorus bearing contaminants. May I suggest you go ahead with your publication. We would prefer you omit any consideration of our help unless you wish to comment on receipt of our manuscript before publication.

It is worth noting that this instability of TPN when trace metals are present is not confined to TPN. Schlenk found that DPN preparations containing traces of aluminum from alumina columns exhibit similar instability. We have had preparations around long enough to be certain this instability is not found routinely. It is observable in another old sample I have left,

but this too was contaminated (Hg) with trace metal. Impure preparations must contain some protective factor, since our impure preparations made via the Warburg technique were quite stable.

We shall look forward to seeing your unravelling of the TPN structure.

Yours sincerely,

G. A. LePage

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Assistant Professor of Oncology

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